



April 23, 2022

Dear Arlington Town Meeting:

The Massachusetts Chapter of the Sierra Club has been leading efforts to address the interrelated issues of climate change, toxics and plastic pollution.

The Sierra Club was founded to promote outdoor activities in nature. However, we do not support the growing trend to install artificial turf athletic fields and related synthetic surfaces. We recognize the challenges of maintaining natural grass athletic fields, but they are the only sustainable option.

First, we can't keep fossil fuels in the ground if we keep converting them to plastics and other petrochemicals. Second, synthetic plastic is much hotter than grass (by up to 50°) regardless of the infill, and will create a *heat island* for the athletes and the neighborhood. Heat islands are often thought to exacerbate the climate impacts of our hotter, drier summers. Plastic turf can cause skin burns and exacerbates heat-related illnesses.

Second, each full-size field removes over two acres of ecosystem that sequesters carbon and covers it with plastic. This will result in a loss of habitat for birds, small mammals, insects, earthworms, etc. Plastic turf is unsanitary (e.g., MRSA and animal wastes) and unpleasant to walk on compared to natural grass. Plastic turf is often sanitized with chemical biocides, which is not required for grass, and would further degrade the surrounding habitat.

Third, an artificial turf field consists of a large number of unknown mixtures of petrochemical plastics and chemicals of varying toxicity. Underneath the plastic carpet are typically a plastic shock pad, a plastic geotextile and drainage system. All plastics and other petrochemicals are toxic throughout their entire lifecycle from oil and gas extraction to product disposal.

A variety of toxic PFAS chemicals have been discovered in major components of turf fields from many companies. The synthetic plastic grass blades are made in part with fluoropolymers, which share the same chemistry as PFAS and are often included in that definition. PFAS has surprisingly been found in organic infills when tested by certified labs. The Sierra Club recently conducted PFAS testing of Mill Brook in Arlington near existing artificial turf fields, revealing nine different chemicals (see Attachment). The total levels are close to the safe limits for Mass. DEP for drinking water. The levels of PFOA and PFOS exceed the new proposed stricter EPA limits for drinking water of 4 ppt. We should not be adding to the town's PFAS burden if it can be at all avoided. *PFAS is so problematic that this should be reason enough to reject artificial turf.*



Finally, plastic surfaces generate non-biodegradable microplastics through abrasion and ultraviolet solar radiation. Chemical leachate is also a concern for plastic turf because so much of the plastic is in direct contact with the underlying soil. Rainwater and any irrigation will wash chemicals and microplastics into the soil, groundwater, and the storm water system. Microparticles and leachate can be ingested by aquatic animals and enter the human food chain. Wind will blow plastic microparticle dust onto people and the surrounding area. Athletes, coaches and groundskeepers will be the most heavily exposed.

A synthetic field will eventually become over 100 tons of bulky solid waste that to date has all been landfilled or incinerated. Plastic recycling is not really working for food packaging and is infeasible for artificial turf due to its size, mixtures and toxicity. Films like synthetic blades and foams in underlayment are always extremely problematic to recycle. Pipes for drainage are likewise very cumbersome to recycle. Any recycling does not make synthetic surfaces “sustainable” since the raw materials are petrochemicals. The new, so-called “advanced recycling” merely renders selected components back to basic synthetic petrochemicals while the process creates additional pollution from toxic by-products.

Several other communities including Andover, Brookline, Springfield, Swampscott, Newburyport, Methuen and Wayland have rejected artificial turf or imposed a moratorium. Arlington has been a state leader on preventing plastic and toxic pollution. We therefore urge the Town to consider the significant long-range negative environmental and health impacts of artificial turf. The formation of a Study Committee provides an opportunity to assess these impacts. The study combined with a moratorium will avoid potential irreversible harms while the committee investigates.

The Sierra Club urges the Town to vote YES on the Substitute Motion for Article 12 submitted by Beth Melofchik.

Respectfully,

Deb Pasternak
Mass. Sierra Club, Chapter Director
deb.pasternak@sierraclub.org



Attachment 1

Compound	Abbreviation	Mill Brook near Arlington High School	Mill Brook near Arlington Catholic HS
Perfluoropentanoic Acid	PFPeA	1.3	1.6
Perfluorohexanoic Acid	PFHxA	2	2.1
Perfluoroheptanoic Acid	PFHpA*	2.1	2.5
Perfluorooctanoic Acid	PFOA* [^] †	7.5	7.7
Perfluorononanoic Acid	PFNA* [^] †	1.5	1.7
Perfluorodecanoic Acid	PFDA*	1	
Perfluorobutane Sulfonic Acid	PFBS [^] †	1.7	2.1
Perfluorohexane Sulfonic Acid	PFHxS* [^] †		1.1
Perfluorooctane Sulfonic Acid	PFOS* [^] †	4.6	4
Max DPH5		7.5	7.7
Total PFAS6 (ppt)		16.7	17
Total PFAS (ppt)		21.7	22.8
PFAS6/Total PFAS		77%	75%
Number of chemicals detected		8	8

* = Mass. DEP PFAS6

[^] = Mass DPH candidate Surface Water Action Level (cSWAL)

† = EPA 6 (proposed)

bold = highest value for the site